

## **REASON**

- **To be able to teach, instruct, and assist crews using TWGSS, the instructor must have an in depth knowledge of the operation, function, and capabilities of TWGSS and its components.**

## **TRAINING OBJECTIVE**

- In a classroom environment, given a student handout, TM 6920-709-12&P-1-1, and TM 9-6920-711-12&P-1, you will become familiar with the function and capability of TWGSS and its components.**

# **TWGSS SUB-SYSTEMS**

- **Firing system**
  - **Transceiver unit**
  - **Tracer, burst, obscuration simulator (TBOS) system**
- **Target system**
  - **Target computer unit**
  - **Retro detector and hull defilade detector units**
- **Training Data Retrieval System (TDRS)**
  - **TDRS computer unit**
  - **TDRS memory card**

# **FIRING SYSTEM**

# **TARGET SYSTEM**

# **COMMON COMPONENTS**

# **TWGSS SYSTEM DESIGN**

# **TRANSCEIVER UNIT**

# **SIMULATION WITH LASER LIGHT**

# **FLYING VOLUME**

# **FLYING VOLUME**

# **GYRO STABILIZATION**

# **IMPACT POINT DETERMINATION**

# **ENGAGEMENT RESULTS**

# **BALLISTIC SIMULATION**

- **Trajectory, velocity, and time of flight**
- **Ammunition and air temperature**
- **Barometric pressure**
- **Subdes and CCFs**
- **Ammunition dispersion selectable**

# **COMPUTER CORRECTION FACTORS**

	<b>SUBDES</b>	<b>AZ</b>	<b>EL</b>
• <b>M1 HEAT (M456A2)</b>	<b>0</b>	<b>0.0</b>	<b>-0.6U</b>
• <b>M1 SABOT (M900)</b>	<b>0</b>	<b>+0.2L</b>	<b>-0.4U</b>
• <b>M1A1 HEAT (M830)</b>	<b>0</b>	<b>-0.25L</b>	<b>+0.37D</b>
• <b>M1A1 SABOT (M829A1)</b>	<b>5</b>	<b>0.0</b>	<b>-0.45U</b>

# **INFORMATION TRANSMITTED**

- **Hit position**
- **Ammunition type fired**
- **Player identification**
- **MILES**

# **TRANSCEIVER UNIT IN GUN BARREL**

- **Protection**
- **Positioned where projectile leaves gun muzzle**
- **Misalignment of sight/gun**
- **Gun tube bending (MRS update)**
- **Mechanical play sight/gun**

# **TBOS EFFECTS**

- **Tracer**
  - **Zoomed**
  - **Switchable on/off**
- **Burst**
  - **Size is ammunition dependent**
  - **Size is range dependent**
  - **Switchable on/off**
- **Obscuration**
  - **Programmable, 0-5 sec**

# **TBOS SIMULATION**

# **TBOS GAS SYSTEM DESIGN**

# **TBOS GAS COMPONENTS**

# **INSTALLATION OF TBOS GAS COMPONENTS**

# **TBOS GPS SYSTEM DESIGN**

# **TBOS GPS COMPONENTS**

# **INSTALLATION OF TBOS GPS COMPONENTS**

# **TARGET SYSTEM**

# **SYSTEM DESIGN OF TARGET SYSTEM**

# **TARGET SYSTEM MAIN FUNCTIONS**

- **Receive information (coded laser light)**
- **Determine angle of attack**
- **Determine MISS/HIT**
- **Determine MOBILITY or WEAPON KILL**
- **Determine catastrophic KILL**
- **Indicate the effect**

# **INFORMATION RECEPTION**

- **Hit coordinates**
- **Type of ammunition fired**
- **Identity of attacker**
- **MILES information**
- **CGUN information**

## **TAMPER INDICATIONS**

- **Disconnection of RDUs**
- **Disconnection of HDDUs**
- **Disconnection of power**
- **Control panel alterations**
- **Disconnection of system cables (BIT errors)**
- **Removal of TDRS memory card**

# **TARGET SYSTEM TEMPLATE**

# **REMOTE SYSTEM INTERFACE COMPONENTS**

# **REMOTE SYSTEM INTERFACE MAIN FUNCTIONS**

- **Determine position**
- **Provide system clock**

# **SYSTEM DESIGN REMOTE SYSTEM INTERFACE**

# **VEHICLE INTERFACE ASSEMBLY SYSTEM DESIGN**

# **VEHICLE INTERFACE MAIN FUNCTIONS**

- **Receive and distribute power**
- **Monitor/inject signals into FCS**
- **Monitor weapon system status for AAR**
- **Register turret/hull relationship**
- **Inject sound into tank intercom**

# **VEHICLE INTERFACE UNIT**

# **VEHICLE INTERFACE UNIT (Cont.)**

# **W11 CABLE**

# **INSTALLATION OF VEHICLE INTERFACE**

# **OPERATOR INTERFACE**

# **CONTROL PANEL MAIN FUNCTIONS**

- **Crew/instructor interface**
- **Setup of system**
- **Defines training parameters**
- **Stores training events**

# **CONTROL PANEL CREW FUNCTIONS**

- **Built-in test (BIT)**
- **Alignment**
- **Upload of ammunition**
- **Presentation of training results**

# **CONTROL PANEL INSTRUCTOR FUNCTIONS**

- Manually adjust system clock**
- Add ammunition to ready rack**
- Add ammunition to hull semi-ready rack**
- View position**

# **SYSTEM CABLES**

# **CONTROL GUN (CGUN)**

## **CGUN MESSAGES**

- **KILL**
- **RESET**
- **TEST**
- **TIME MARK**
- **ENABLE CONTROL**

# **RETRO REFLECTOR UNIT**

# **SUMMARY**

- **TWGSS components and their function**
- **CGUN**

## **CLOSING STATEMENT**

- **This block of instruction has provided the instructor an in depth knowledge of TWGSS. The knowledge gained in this lesson will be of use when training soldiers in your unit.**